

APPLICATION FOR UNITED STATES PATENT

OF

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FOR

APPARATUS AND METHOD

FOR A

Powered Edge Cleaning Vacuum

TITLE

Powered Edge Cleaning Vacuum

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Assignee:

None

REFERENCES CITED

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ABSTRACT

An apparatus and method suitable to remove dirt and debris from the floor edge, where a wall meets the floor, with a power driven brush in conjunction with a vacuum unit.

BACKGROUND

There are many different types of vacuum units that successfully remove floor contaminants, such as dirt, hair, dust, etc., from open carpet areas. These units do not perform adequately in removing the floor contaminants from wall edges and next to obstacles such as furniture because the vacuums powered brushing mechanisms do not reach to the outside surface of the vacuum housing unit. There have been many attempts to incorporate edge agitation devices into vacuum cleaning units, however none of them aggressively clean to the edge of the vacuum head. Some existing edge cleaners are simple add-on fixed mount brushes that when the vacuum head moves across the floor, this edge cleaner scrapes the top surface of the carpet in order to flick the debris into the air so that the air flow from the vacuum will draw the debris into the vacuum unit. There is another mechanically actuated brush technique whereby a brush is horizontally driven back and forth in the front to rear plane of the vacuum head to lift the dirt with multiple passes thereby flicking more of the dirt or dust into the air so that the air flow from the vacuum will draw the debris into the vacuum unit. One sweeping unit incorporates a horizontally rotating wheel to brush on top of the carpet surface so that the large particulate matter can be brushed into the path of the sweeping unit. In addition, there are a multitude of handheld attachments to vacuum units for edge cleaning which are functioned by the operator applying the required effort to manually remove dirt and debris. None of these instruments have solved the root cause of the problem in getting a mechanically operated device to aggressively clean edges. If left uncleaned, a darkened dirt laden strip will form at the floor edge next to the wall. This invention's powered brush provides the

aggressive agitating action at the edge of the vacuum head to remove the contaminants from the edge formed by the wall and floor.

SUMMARY

The present invention has been made in view of the above-explained inadequacies of the known method of edge cleaning apparatus and methods and has the objective to provide a simple easy to use instrument. To achieve a rotary brushing action, bearings are utilized thus allowing the brushes to spin at a high rate of rotation in order to actively brush contaminants into the vacuum unit. Vacuum rotary brushes have bearings that are mounted on the extreme limits of the brush ends. The vacuum head has the other side of the bearing mounted near the inner wall of the head. The space occupied by the bearings, mountings, and pivot points leaves a gap at the outer edges of the vacuum unit. This creates a vacuumed but non-agitated zone between the end of the rotating brush and the outside surface of the housing. This space has become quite large on some units which only exacerbates the problem. This brush and housing assembly invention is different than conventional assemblies because the bearings are set at one side of the vacuum head to allow the power rotating brushes to extend to the outer surface of the vacuum head. The vacuum head sidewall at the rotating brush location can be an ultra thin piece of the housing, no housing at all, or it can be open except covered with a thin portion of the vacuum head bumper seal. The vacuum head is also adapted to receive the bearings and mounts for easy removal, brush replacement, or belt replacement.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is an illustration view of the instrument

FIG. 2 is a detail view of the instrument

DETAILED DESCRIPTION

Preferred embodiment

The preferred embodiment is as per Figure 1 in which piece number 1 is the vacuum head. Piece number 2 is the bearing that attaches to the rotary brush, piece number 3, on the inside bearing surface and the outer bearing surface attaches to the bearing mounting assembly piece number 4. The bearing mounting assembly, piece number 4, secures the brush and bearings to the vacuum head at bearing mounting assembly locations formed into the vacuum head, piece number 5. The wall of the vacuum head, is left open or covered by the vacuum head bumper guard, piece number 6, if so desired. Piece number 7 is the suction device of the vacuum unit. Figure number 2 shows the drive belt, piece number 8, vacuum throat, piece number 9, and drive gear, piece number 10 which can be molded into the brush shaft. Piece number 12 is a power drive for agitation and piece number 12 is a vacuum unit with filter which can be housed in any number of fixture types.

Alternatives to this preferred embodiment also include:

A hand held unit for use as a stand alone unit with a similar bearing offset placement power rotating head that has a vacuum device included.

There are many variations to the preferred embodiments described in this application that those skilled in the art will recognize. Although only a few variations are described in this invention, it is understood that the application of these variations or practices or any similar are contained in the spirit and scope of the following claims.

What is claimed is: